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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/273,801	03/19/1999	HI-CHAN MOON	678-246	7593

7590 11/06/2002

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EXAMINER

ELALLAM, AHMED

ART UNIT

PAPER NUMBER

2662

DATE MAILED: 11/06/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

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Office Action Summary

Application No.

09/273,801

Applicant(s)

MOON, HI-CHAN

Examiner

AHMED ELALLAM

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 19 March 1999.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-35 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-35 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 19 March 1999 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☒ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

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DETAILED ACTION

Drawings

1. Figure 1, 2 and 3 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.
2. The drawings of Figure 4 are objected to because Box 410 has a typo error. A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

CLAIM OBJECTION

3. Claims 4 and 5 are objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of previous claim 2. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form. The limitation in claim 4 states "puncturer punctures said data symbols in consideration of the number of symbols of said side information" which is similar to the limitation as in claim 2. Similar remarks apply to claim 5.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 1-6, 8, 10-14 and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wheatley, III et al, US (5,461,639) in view of Bruckert, US (5,751,763).

Regarding claim 1, with reference to figure 4, Wheatley discloses an apparatus comprising:

a channel encoder for encoding input data I(D) in a frame unit to generate encoded data symbols;

a power control bit generator (claimed side information generator for generating side information);

a puncturer;

an interleaver;

a Walsh codes generator 401 for spreading

Wheatley does not disclose a selector for generating a select control signal designating positions into which side information is inserted and side information inserter for

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inserting the side information between encoded data symbols in response to the select control signal.

However, with reference to Figure 7, Bruckert in the same field of endeavor discloses a power control bit (PCB) selector 705 in connection with a power control bit inserter 709 for inserting PCB into specific positions designated by (PCB) selector, see column 7, lines 62-6 and column 8, lines 1-20.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the PCB insertion designated position apparatus of Bruckert in the transmitter of Wheatley so that power control bits would be inserted in determined locations resulting in fast transmission power allocation.

Regarding claim 2, with reference to Figure 4, Wheatley discloses a puncturer for puncturing encoded data symbols at predetermined locations, see column 5, lines 1-20.

Wheatley does not disclose puncturing data symbol by the number of symbols of side information.

However, with reference to Figure 7, Bruckert discloses inserting PCB at predetermined location, see column 7, lines 62-67 and column 8, lines 1-20.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to insert PCB in the predetermined punctured locations of Wheatley using the insertion of PCB mechanism taught by Bruckert so that puncturing would be carried out according to the PCB insertion as needed and to avoid unnecessary puncturing.

Regarding claim 3, with reference to Figure 4, Wheatley discloses an interleaver for interleaving encoded data symbols and inserting PCB after interleaving punctured data streams.

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The difference between Wheatley and Applicant is that Wheatley does not puncture symbols to be use for side information insertion.

However, it would have been obvious to one of ordinary skill in the art at the time the invention was made to use to insertion of PCB insertion mechanism of Bruckert applied to the interleaved encoded symbols of Wheatley so that insertion of CPB would take place at the punctured positions.

Regarding claims 4 and 5, claim 4 and 5 have similar limitation as in claim 2, thus they subject to the same rejection.

Regarding claim 6, Wheatley discloses multiplexing of a power control bit with interleaved punctured symbols, see Figure 4. (Corresponding to the side information is a power control bit).

Regarding claim 8, Wheatley discloses puncturing all the bits that are in locations $6n+3$ and $6n+5$. See column 5, lines 10-17. (Corresponding to periodically designating a position into which side information is inserted at preset interval).

Regarding claims 10-14, 16, claims 10-14, 16 are method claims and having substantially the same limitations as the respective apparatus claims 1-6, thus they are subject to the same rejection.

6. Claims 7, 9, 15 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bruckert in view of Wheatley as applied to claim 3 above, and further in view of Tiedemann Jr. et al, US (6,396,867).

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Regarding claim 7, Bruckert in view of Wheatley discloses designating positions for control power bit insertion in a deterministic manner as indicated above in claim 3, except they don't disclose pseudorandom designation of position into which side information is inserted.

However, Tiedemann in the same field of endeavor, discloses pseudo-random selection of position into which power control bits are punctured in. See column 6, lines 23-38.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have the pseudo-random position selection within a power group of Tiedemann instead of the deterministic PCB insertion (side information insertion) of Bruckert in view of Wheatley, so that puncturing can be carried out only when it is needed thus resulting in more available bandwidth.

Regarding claim 9, Bruckert in view of Wheatley discloses substantially the same limitations of claim 9 as indicated above with reference to claim 7, except they do not disclose using the least significant bits of a given number of a long code of a previous power control group.

However, Tiedemann discloses using the first 16 positions within a previous power group for PCB insertion. See column 6, lines 23-38.

Therefore, it would have been obvious to one ordinary person of skill in the art at the time of the invention to use the least significant bits of the long PN code of the power group of Tiedemann instead of the deterministic PCB (Power Control Bit)

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insertion of Bruckert in view of Wheatley so that non-ancillary information positions would be preserved for the main information.

Regarding claims 15, 17, claims 15 and 17 are method claims and having substantially the same limitations as the respective apparatus claims 7 and 9, thus they are subject to the same rejection.

7. Claims 18-20, 24-26 and 30-32 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bender et al, US (6366,778) in view of Bruckert, US (5,751,763).

Regarding claim 18, with reference to Figure 4 Bender disclose a block diagram of an encoder 400 for encoding a channel information bits transmitted by a base station transceiver (claimed transmitter), the encoder 400 receives as its input blocks of traffic channel information bits to be transmitted from a base station transceiver to a mobile station, Bender also discloses that the encoder append Cyclic Redundancy Check (CRC) bits to the information bits (410), appends tail bits to block code (420), Walsh covers to make the rates orthogonal, puncture to reduce the symbol to a number that can be carried on one or two forward code channels, interleaves with a bit reversal block interleaver (470), scrambles the symbols, and optionally gates off 50 percent of the symbols. See column 9, lines 59-67 and column 10, lines 1-15. Bender further discloses that once the starting position of the power control command is determined, a BPSK symbol representing the power control command is inserted in place of the punctured symbols. See column 13, lines 64-67 and column 14, lines 1-7.

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Bender does not explicitly disclose a selector for generating a select control signal designating a position into which side information is inserted and side information inserter for inserting the side information between encoded data symbols in response to the select control signal.

However, with reference to Figure 7, Bruckert in the same field of endeavor discloses a power control bit (PCB) selector 705 in connection with a power control bit inserter 709 for inserting PCB into specific positions designated by (PCB) selector, see column 7, lines 62-6 and column 8, lines 1-20.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the PCB insertion designated position apparatus of Bruckert in the transmitter of Bender so that power control bits would be inserted in determined punctured locations resulting in fast power control mechanism.

Regarding claims 19 and 20, Bender discloses substantially all the limitations of claim 19, except it does not disclose puncturing the output symbols of the encoder in consideration of the number of side information.

Bender does not explicitly disclose puncturing data symbol by the number of symbols of side information.

However, with reference to Figure 7, Bruckert discloses inserting PCB at predetermined location in correspondence with punctured symbols, see column 7, lines 62-67 and column 8, lines 1-20.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to implement Bruckert PCB insertion mechanism in Bender system so

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that Bender's punctured locations would be inserted accordingly with ancillary information as needed.

Regarding claims 24 and 30, claim 24 is an apparatus claim that have the same limitations as the method claim 30, In addition claim 24 recites a transmitter and a receiver limitations, the transmitter limitations are the same as in claim 18 above, thus the transmitter limitations are subject to same rejection as indicated with regard to claim 18, and because the receiver limitations are the reverse steps of the transmitter limitations it follows that the receiver limitations are rejected by way of symmetry since a receiver must communicate with a transmitter using the reverse steps of the transmitter.

Regarding claims 25 and 31, claims 25 and 31 have the same scope of claim 19, thus they are subject to the same rejection.

Regarding claims 26 and 32, claims 26 and 32 have the same scope of claim 20, thus they are subject to the same rejection.

8. Claims 21, 23, 27, 29, 33 and 35 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bender in view of Bruckert as applied to claim 18 above, and further in view of Tiedemann Jr. et al, US (6,396,867).

Regarding claim 21, Bender in view of Bruckert discloses designating positions for control power bit insertion in designated positions as indicated above with regard to claim 18, except they don't disclose pseudo-random designation of position into which PCB (side information) is inserted.

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Regarding claim 21, Bender in view of Bruckert discloses designating positions for control power bit insertion in designated positions as indicated above with regard to claim 18, except they don't disclose pseudo-random designation of position into which PCB (side information) is inserted.

However, Tiedemann in the same field of endeavor discloses pseudo-random selection of position into which power control bits are punctured in. See column 6, lines 23-38.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have the pseudo-random position selection within a power group of Tiedemann instead of the well designated PCB insertion (side information insertion) of Bender in view Bruckert, so that puncturing and insertion of symbols would not requires sophisticated circuitry that is needed for precise puncturing and PCB insertion.

Regarding claim 23, Bender in view of Bruckert discloses substantially the same limitations of claim 23 as indicated above with reference to claim 18, except they do not disclose using the least significant bits of a given number of a long code of a previous power control group.

However, Tiedemann discloses using the first 16 positions within a previous power group for PCB insertion. See column 6, lines 23-38.

Therefore, it would have been obvious to one ordinary person of skill in the art at the time of the invention to use the least significant bits of the long PN code of the power group of Tiedemann instead of the designated PCB (Power

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Control Bit) insertion of Bender in view of Bruckert so that non-ancillary information positions would be preserved for the main information.

Regarding claims 27 and 33, claims 27 and 33 have the same scope of claim 21, thus they are subject to the same rejection.

Regarding claims 29, 35, claims 29, 35, have the same scope of claim 23, thus they are subject to the same rejection.

9. Claims 22, 28 and 34 is rejected under 35 U.S.C. 103(a) as being unpatentable over Bender in view of Bruckert as applied to claim 18 above, and further in view of Wheatley (already indicated).

Regarding claim 22, Bender in view of Bruckert discloses substantially all the limitations of claim 22, except that they don't disclose periodically designating a position into which side information is inserted at preset interval.

However, Wheatley discloses in the same field of endeavor, puncturing all the bits that are in locations $6n+3$ and $6n+5$. See column 5, lines 10-17. (Corresponding to periodically designating a position into which side information is inserted at preset interval).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to implement the periodic insertion method of Wheatley in carrying the PCB insertion in the system of Bender/ Bruckert so that efficient power allocation can be regulated on frame by frame basis.

Regarding claims 28, 34, claims 28, 34, have the same scope of claim 22, thus they are subject to the same rejection.

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Conclusion


10. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure: Tiedemann, JR. US (6,307,849); Ziv et al, US (5,703,902); Dahlman et al, US (5,883,899); Ali et al US (5,896,411); Wang et al, US (6,084,904); Abrishamkar, US (6,097,716).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to AHMED ELALLAM whose telephone number is (703) 308-6069. The examiner can normally be reached on 9-5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kizou Hassan can be reached on (703) 305-4744. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9314 for regular communications and (703) 872-9314 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 305-4700.

AHMED ELALLAM
Examiner
Art Unit 2662
November 3, 2002


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